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Distributed System

A collection of autonomous computers linked by a network using software to produce an integrated computing facility.

There are different advantages and disadvantages of distributed system they are as follows:

Advantages

1. Performance:

Distributed systems allow for greater overall service performance than systems whose function is centralized in a single location. By spreading the computational load across different nodes, each location is under less stress. This allows each node to perform more efficiently, which increases the performance of the overall service.

2. Reliability:

When computation is centred around a single machine, the health of that machine is the

health of the entire service if it goes down, so the entire service is affected. Thus distributed systems is reliable and not affected if any system goes down.

3. Sharing Data:

There is a provision in the environment where user at one site may be able to access the data residing at other sites.

4. Autonomy:

Because of sharing data by means of data distribution each site is able to retain a degree of control over data that are stored locally.

5. Availability:

If one site fails in a distributed system, the remaining sites may be able to continue operating. Thus a failure of a site doesn’t necessarily imply the shutdown of the System.

In distributed system there is a global database administrator responsible for the entire system.

A part of global data base administrator responsibilities is delegated to local data base administrator for each site. Depending upon the design of distributed database.

Disadvantages

The added complexity required to ensure proper co-ordination among the sites, is the major disadvantage. This increased complexity takes various forms :-

1. Software Development Cost:

It is more difficult to implement a distributed database system; thus it is more costly.

2. Greater Potential for Bugs:

Since the sites that constitute the distributed database system operate parallel, it is harder to ensure the correctness of algorithms, especially operation during failures of part of the system, and recovery from failures. The potential exists for extremely subtle bugs.

3. Increased Processing Overhead:

The exchange of information and additional computation required to achieve inter site co-ordination or a form of overhead that does not arise in centralized system.